We claim:

1. A therapeutic source comprising a radioactive composite consisting essentially of (a) a polymeric matrix and (b) a radioactive powder consisting essentially of very fine radioactive particles that are randomly and essentially uniformly dispersed within said polymeric matrix;

wherein the radioactive composite is in the shape of one or more right circular cylindrical rods, solid in cross section, having a cylindrical wall and a pair of ends on opposite sides thereof, and wherein the therapeutic source further comprises a non-radioactive sleeve which surrounds the cylindrical wall.

2. A therapeutic source of claim 1, further comprising a pair of caps covering said ends of the radioactive composite.

3. A therapeutic source of claim 2, wherein the nonradioactive sleeve and pair of caps are of sufficient thickness to absorb a portion of the radiation emitted or to modify the energy spectrum of the emitted radiation.

4. A therapeutic source of claim 3, wherein the radioactive particles emit beta particles and wherein the nonradioactive sleeve and pair of caps reduce the average energy of emitted beta particles.

5. A therapeutic source of claim 1, further comprising a radiographically detectable element for locating the source within the body of the patient.

6. A therapeutic source of claim 5, wherein the radiographically detectable element comprises polymeric material containing a sufficient amount of radiopaque material so as to allow location of the therapeutic source and detection of its orientation by conventional X-ray imaging.

7. A therapeutic source of claim 6, wherein the radiopaque material is barium sulfate.

8. A therapeutic source of claim 1, further comprising an axial wire having a tail portion that extends beyond an end of the radioactive composite, whereby said tail portion is adapted to be secured to a catheter.

9. A method of using a therapeutic source of claim 8, which comprises using a catheter secured to the source to deliver a dose of radiation to an arterial wall which is intended to reduce the likelihood of restenosis.

10. A therapeutic source comprising a radioactive composite consisting essentially of (a) a polymeric matrix and (b) a radioactive powder consisting essentially of very fine radioactive particles that are randomly and essentially uniformly dispersed within said polymeric matrix, the radioactive composite having a shape selected from the group consisting of a structure that is hollow in cross section; a suture; a mesh; a film; a sheet; and a multiplicity of microscopic essentially monodisperse spheroidal sources.

11. A therapeutic source of claim 10, the radioactive composite having the shape of a multiplicity of microscopic essentially monodisperse spheroidal sources having a mean diameter of from 10 to 100 microns.

12. A therapeutic source of claim 10, wherein the radioactive powder comprises palladium-103.

13. A therapeutic source of claim 10, wherein the radioactive powder comprises iodine-125.

14. A therapeutic source comprising a radioactive composite consisting essentially of (a) a polymeric matrix and (b) a radioactive powder consisting essentially of microscopic radioactive particles at least 0.002 micron in average dimension randomly and essentially uniformly dispersed within said polymeric matrix;

the radioactive composite being encapsulated within a metallic capsule.

15. A therapeutic source of claim 14, wherein the metallic capsule comprises titanium.

16. A therapeutic source of claim 14, further comprising a radiographically detectable element for locating the source within the body of the patient.

17. A method of making a therapeutic source comprising a radioactive composite consisting essentially of (a) a polymeric matrix and (b) a radioactive powder consisting essentially of very fine radioactive particles that are randomly and essentially uniformly dispersed within said polymeric matrix, comprising

molding the radioactive composite into a desired shape.

18. A method of claim 17, wherein the radioactive composite is molded over a pin to produce a hollow shape.

19. A method of claim 17, wherein the radioactive composite is molded around a radiographically detectable element.

20. A method of claim 17, wherein the radioactive composite is molded inside a capsule.

21. A method of claim 17, wherein the radioactive composite is molded into a shape appropriate for use as an intracavitary applicator therapeutic source, whereby the entire applicator body is radioactive so that the area treated receives a uniform dose of radiation.

22. A therapeutic source made by the method of claim 17.